



09/823,886


Attorney Docket No: C1102/7002(HCL)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Newell et al.
Serial No.: 09/823,886
Filed: March 30, 2001
For: COMPOSITIONS AND METHODS FOR REGULATING METABOLISM
IN PLANTS
Examiner: Unassigned
Art Unit: 1616

CERTIFICATE OF MAILING UNDER 37 CFR §1.8(a)

The undersigned hereby certifies that this document is being placed in the United States mail with first-class postage attached, addressed to Box Missing Parts, Commissioner for Patents, Washington, D.C. 20231, on the 14 day of August, 2001.


Helen C. Lockhart


Box Missing Parts
Commissioner for Patents
Washington, D.C. 20231

STATEMENT PURSUANT TO 37 CFR 1.821(f)

Sir:

This statement is made pursuant to 37 CFR 1.821(f). Applicants enclose herewith a copy of the Sequence Listing and a computer readable diskette. Applicants' attorney states that the content of the paper copy of the Sequence Listing and the computer readable diskette contain the identical information.

Respectfully submitted,



Helen C. Lockhart
Reg. No. 39,248
Wolf, Greenfield & Sacks, P.C.
600 Atlantic Avenue
Boston, MA 02210-2211
(617)720-3500

Docket No. C1102/7002(HCL)
Date: August 14, 2001
X08/14/01



09025886 .081601 #4

1

SEQUENCE LISTING

<110> Newell, Martha

Berry-Lowe, Sandra

<120> Compositions and methods for regulating metabolism in plants

<130> C1102/7002

<140> Not assigned

<141> 2001-03-30

<150> US 60/193,533

<151> 2000-03-31

<160> 16

<170> PatentIn version 3.0

<210> 1

<211> 924

<212> DNA

<213> Homo sapiens

<400> 1

atgggggggcc	tgacagcctc	ggacgtacac	ccgaccctgg	gggtccagct	cttctcagct	60
ggaatagcgg	cgtgcttggc	ggacgtgac	accttcccgc	tggacacggc	caaagtcgg	120
ctccaggtcc	aaggtgaatg	cccgacgtcc	agtgttatta	ggtataaagg	tgtcctggga	180
acaatcaccg	ctgtggtaaa	aacagaagg	cggatgaaac	tctacagcgg	gctgcctgcg	240
gggcttcagc	ggcaaatac	ctccgcctct	ctcaggatcg	gcctctacga	cacgggtccag	300
gagttcctca	ccgcagggaa	agaaacagca	cctagtttag	gaagcaagat	tttagctggt	360
ctaacgactg	gaggagtggc	agtattcatt	gggcaacca	cagaggtcgt	gaaagtcaga	420
cttcaagcac	agagccatct	ccacggaatc	aaacctcgct	acacggggac	ttataatgcg	480
tacagaataa	tagcaacaac	cgaaggcttg	acgggtcttt	ggaaaggggac	tactcccaat	540

ctgatgagaa gtgtcatcat caattgtaca gagctagtaa catatgatct aatgaaggag 600
gcctttgtga aaaacaacat attagcagat gacgtcccct gccacttggt gtcggctctt 660
atcgctggat ttgcgcaac agctatgtcc tccccggtgg atgtagtaaa aaccagattt 720
attaattctc caccaggaca gtacaaaagt gtgcccaact gtgcaatgaa agtgttcact 780
aacgaaggac caacggcttt cttcaagggg ttggtacctt ccttcttgcg acttggatec 840
tggaacgtca ttatgtttgt gtgctttgaa caactgaaac gagaactgtc aaagtcaagg 900
cagactatgg actgtgccac ataa 924

<210> 2

<211> 307

<212> PRT

<213> Homo sapiens

<400> 2

Met	Gly	Gly	Leu	Thr	Ala	Ser	Asp	Val	His	Pro	Thr	Leu	Gly	Val	Gln	1	5	10	15
Leu	Phe	Ser	Ala	Gly	Ile	Ala	Ala	Cys	Leu	Ala	Asp	Val	Ile	Thr	Phe	20	25	30	
Pro	Leu	Asp	Thr	Ala	Lys	Val	Arg	Leu	Gln	Val	Gln	Gly	Glu	Cys	Pro	35	40	45	
Thr	Ser	Ser	Val	Ile	Arg	Tyr	Lys	Gly	Val	Leu	Gly	Thr	Ile	Thr	Ala	50	55	60	
Val	Val	Lys	Thr	Glu	Gly	Arg	Met	Lys	Leu	Tyr	Ser	Gly	Leu	Pro	Ala	65	70	75	80
Gly	Leu	Gln	Arg	Gln	Ile	Ser	Ser	Ala	Ser	Leu	Arg	Ile	Gly	Leu	Tyr	85	90	95	
Asp	Thr	Val	Gln	Glu	Phe	Leu	Thr	Ala	Gly	Lys	Glu	Thr	Ala	Pro	Ser	100	105	110	
Leu	Gly	Ser	Lys	Ile	Leu	Ala	Gly	Leu	Thr	Thr	Gly	Gly	Val	Ala	Val	115	120	125	
Phe	Ile	Gly	Gln	Pro	Thr	Glu	Val	Val	Lys	Val	Arg	Leu	Gln	Ala	Gln	130	135	140	
Ser	His	Leu	His	Gly	Ile	Lys	Pro	Arg	Tyr	Thr	Gly	Thr	Tyr	Asn	Ala	145	150	155	160

Tyr Arg Ile Ile Ala Thr Thr Glu Gly Leu Thr Gly Leu Trp Lys Gly
165 170 175

Thr Thr Pro Asn Leu Met Arg Ser Val Ile Ile Asn Cys Thr Glu Leu
180 185 190

Val Thr Tyr Asp Leu Met Lys Glu Ala Phe Val Lys Asn Asn Ile Leu
195 200 205

Ala Asp Asp Val Pro Cys His Leu Val Ser Ala Leu Ile Ala Gly Phe
210 215 220

Cys Ala Thr Ala Met Ser Ser Pro Val Asp Val Val Lys Thr Arg Phe
225 230 235 240

Ile Asn Ser Pro Pro Gly Gln Tyr Lys Ser Val Pro Asn Cys Ala Met
245 250 255

Lys Val Phe Thr Asn Glu Gly Pro Thr Ala Phe Phe Lys Gly Leu Val
260 265 270

Pro Ser Phe Leu Arg Leu Gly Ser Trp Asn Val Ile Met Phe Val Cys
275 280 285

Phe Glu Gln Leu Lys Arg Glu Leu Ser Lys Ser Arg Gln Thr Met Asp
290 295 300

Cys Ala Thr
305

<210> 3

<211> 1105

<212> DNA

<213> Homo sapiens

<400> 3

gttcctctat ctggtcttgt tgctgattaa aggtgccct gtctccagtt tttctccatc 60

tcctgggacg tagcaggaaa tcagcatcat ggttggttc aaggccacag atgtgcccc 120

tactgccact gtgaagtttc ttggggctgg cacagctgcc tgcacgcag atctcatcac 180

ctttcctctg gatactgcta aagtccggtt acagatccaa ggagaaagtc aggggccagt 240

gcgcgctaca gccagcgccc agtaccgcgg tgtgatgggc accattctga ccatggtgcg 300

tactgagggc cccgaagcc tctacaatgg gctggttgcc ggctgcagc gccaaatgag 360

ctttgcctct gtccgcacgc gcctgtatga ttctgtcaaa cagttctaca ccaagggtc 420

tgagcatgcc agcattggga gccgcctcct agcaggcagc accacaggtg ccctggctgt 480

ggctgtggcc cagcccacgg atgtggtaaa ggtccgattc caagctcagg cccgggctgg 540
 aggtgggtcgg agataccaaa gcaccgtcaa tgcctacaag accattgccc gagaggaagg 600
 gttccggggc ctctggaaaag ggacctctcc caatgttgct cgtaatgcca ttgtcaactg 660
 tgctgagctg gtgacctatg acctcatcaa ggatgccctc ctgaaagcca acctcatgac 720
 agatgacctc ccttgccact tcacttctgc ctttggggca ggcttctgca ccactgtcat 780
 cgctccctt gtagacgtgg tcaagacgag atacatgaac tctgccctgg gccagtacag 840
 tagcgctggc cactgtgccc ttaccatgct ccagaaggag gggccccgag ccttctacaa 900
 agggttcatg ccttcctttc tccgcttggg ttcttggaac gtggatgatg tcgtcaccta 960
 tgagcagctg aaacgagccc tcatggctgc ctgcacttcc cgagaggctc ccttctgagc 1020
 ctctcctgct gctgacctga tcacctctgg ctttgtctct agccggggcca tgctttcctt 1080
 ttcttccttc tttctcttcc ctccg 1105

<210> 4

<211> 314

<212> PRT

<213> Homo sapiens

<400> 4

Gln Glu Ile Ser Ile Met Val Gly Phe Lys Ala Thr Asp Val Pro Pro
 1 5 10 15
 Thr Ala Thr Val Lys Phe Leu Gly Ala Gly Thr Ala Ala Cys Ile Ala
 20 25 30
 Asp Leu Ile Thr Phe Pro Leu Asp Thr Ala Lys Val Arg Leu Gln Ile
 35 40 45
 Gln Gly Glu Ser Gln Gly Pro Val Arg Ala Thr Ala Ser Ala Gln Tyr
 50 55 60
 Arg Gly Val Met Gly Thr Ile Leu Thr Met Val Arg Thr Glu Gly Pro
 65 70 75 80
 Arg Ser Leu Tyr Asn Gly Leu Val Ala Gly Leu Gln Arg Gln Met Ser
 85 90 95
 Phe Ala Ser Val Arg Ile Gly Leu Tyr Asp Ser Val Lys Gln Phe Tyr
 100 105 110

Thr Lys Gly Ser Glu His Ala Ser Ile Gly Ser Arg Leu Leu Ala Gly
115 120 125

Ser Thr Thr Gly Ala Leu Ala Val Ala Val Ala Gln Pro Thr Asp Val
130 135 140

Val Lys Val Arg Phe Gln Ala Gln Ala Arg Ala Gly Gly Gly Arg Arg
145 150 155 160

Tyr Gln Ser Thr Val Asn Ala Tyr Lys Thr Ile Ala Arg Glu Glu Gly
165 170 175

Phe Arg Gly Leu Trp Lys Gly Thr Ser Pro Asn Val Ala Arg Asn Ala
180 185 190

Ile Val Asn Cys Ala Glu Leu Val Thr Tyr Asp Leu Ile Lys Asp Ala
195 200 205

Leu Leu Lys Ala Asn Leu Met Thr Asp Asp Leu Pro Cys His Phe Thr
210 215 220

Ser Ala Phe Gly Ala Gly Phe Cys Thr Thr Val Ile Ala Ser Pro Val
225 230 235 240

Asp Val Val Lys Thr Arg Tyr Met Asn Ser Ala Leu Gly Gln Tyr Ser
245 250 255

Ser Ala Gly His Cys Ala Leu Thr Met Leu Gln Lys Glu Gly Pro Arg
260 265 270

Ala Phe Tyr Lys Gly Phe Met Pro Ser Phe Leu Arg Leu Gly Ser Trp
275 280 285

Asn Val Val Met Phe Val Thr Tyr Glu Gln Leu Lys Arg Ala Leu Met
290 295 300

Ala Ala Cys Thr Ser Arg Glu Ala Pro Phe
305 310

<210> 5

<211> 1132

<212> DNA

<213> Homo sapiens

<400> 5

tcctgggqatg gagccctagg gagccctgt gctgcccctg ccgtggcagg actcacagcc 60

ccaccgctgc actgaagccc aaggctgtgg agcagcctct ctcttggac ctctctcgg 120

ccctaaaggg actgggcaga gccttccagg actatggttg gactgaagcc ttcagacgtg 180

cctccacca tggctgtgaa gttcctgggg gcaggcacag cagcctgttt tgctgacctc 240

gttacctttc	cactggacac	agccaaggtc	cgcttgcaga	tccaggggga	gaaccaggcg	300
gtccagacgg	cccggtctcg	gcagtaccgt	ggcgtgctgg	gcaccatcct	gaccatgggtg	360
cggactgagg	gtccctgcag	cccctacaat	gggctgggtg	ccggcctgca	gcgccagatg	420
agcttcgcct	ccatccgcat	cggcctctat	gactccgtca	agcaggtgta	cacccccaaa	480
ggcgcgga	actccagcct	cactaccg	atthttggccg	gctgcaccac	aggagccatg	540
gcggtgacct	gtgcccagcc	cacagatgtg	gtgaagggtcc	gatttcaggc	cagcatacac	600
ctcggggccat	ccaggagcga	cagaaaatac	agcgggacta	tggacgccta	cagaaccatc	660
gccagggagg	aaggagtcag	gggcctgtgg	aaaggaactt	tgcccaacat	catgaggaat	720
gctatcgtca	actgtgctga	ggtggtgacc	tacgacatcc	tcaaggagaa	gctgctggac	780
taccacctgc	tcactgacaa	cttcccctgc	cactttgtct	ctgccttttg	agccggcttc	840
tgtgccacag	tggtggcctc	cccgttgga	gtggtgaaga	cccgttatat	gaactcacct	900
ccaggccagt	acttcagccc	cctcgactgt	atgataaaga	tggtggccca	ggaggggccc	960
acagccttct	acaaggggtg	agcctctctc	tgctccagc	actccctccc	agagaacagg	1020
ggcttctttc	ttttcgaaatg	tggctaccgt	gggtcaacct	gggatgtagc	ggtgaagagt	1080
acagatgtaa	atgccacaaa	gaagaagttt	aaaaaaccat	gcaaaaaaaaa	aa	1132

<210> 6

<211> 284

<212> PRT

<213> Homo sapiens

<400> 6

Arg Asp Trp Ala Glu Pro Ser Arg Thr Met Val Gly Leu Lys Pro Ser
1 5 10 15

Asp Val Pro Pro Thr Met Ala Val Lys Phe Leu Gly Ala Gly Thr Ala
20 25 30

Ala Cys Phe Ala Asp Leu Val Thr Phe Pro Leu Asp Thr Ala Lys Val
35 40 45

Arg Leu Gln Ile Gln Gly Glu Asn Gln Ala Val Gln Thr Ala Arg Leu
50 55 60

Val Gln Tyr Arg Gly Val Leu Gly Thr Ile Leu Thr Met Val Arg Thr

65		70		75		80
Glu Gly Pro Cys Ser Pro Tyr Asn Gly Leu Val Ala Gly Leu Gln Arg						
		85		90		95
Gln Met Ser Phe Ala Ser Ile Arg Ile Gly Leu Tyr Asp Ser Val Lys						
		100		105		110
Gln Val Tyr Thr Pro Lys Gly Ala Asp Asn Ser Ser Leu Thr Thr Arg						
		115		120		125
Ile Leu Ala Gly Cys Thr Thr Gly Ala Met Ala Val Thr Cys Ala Gln						
		130		135		140
Pro Thr Asp Val Val Lys Val Arg Phe Gln Ala Ser Ile His Leu Gly						
		145		150		155
Pro Ser Arg Ser Asp Arg Lys Tyr Ser Gly Thr Met Asp Ala Tyr Arg						
		165		170		175
Thr Ile Ala Arg Glu Glu Gly Val Arg Gly Leu Trp Lys Gly Thr Leu						
		180		185		190
Pro Asn Ile Met Arg Asn Ala Ile Val Asn Cys Ala Glu Val Val Thr						
		195		200		205
Tyr Asp Ile Leu Lys Glu Lys Leu Leu Asp Tyr His Leu Leu Thr Asp						
		210		215		220
Asn Phe Pro Cys His Phe Val Ser Ala Phe Gly Ala Gly Phe Cys Ala						
		225		230		235
Thr Val Val Ala Ser Pro Val Asp Val Val Lys Thr Arg Tyr Met Asn						
		245		250		255
Ser Pro Pro Gly Gln Tyr Phe Ser Pro Leu Asp Cys Met Ile Lys Met						
		260		265		270
Val Ala Gln Glu Gly Pro Thr Ala Phe Tyr Lys Gly						
		275		280		

<210> 7

<211> 6428

<212> DNA

<213> Solanum tuberosum

<400> 7

gaattcatca catataaata gtgtggtcct ccttggtgttg ggtagaagta gaaacaacaa	60
gaaatataaa agagaaagag tggaagaaaa gatgagaaat attatattgt gtatattgag	120
taagtgtagt gaacgagaga gttgagacag agaaaatatt ttaagtcttt aactatattc	180

actatacaaa	ggagaatatt	catatggtga	aggaaagtgt	tcttggtggtg	agtttttggac	240
tcttcaacta	attcagaggt	gtacaacgtt	attggactat	tgtatcctgg	agaggacaag	300
tcaagagtga	tactgctgga	tcggtgtaga	ttatgccgta	gttgacttga	atctttcttaa	360
agagagtgag	atattcgtgc	ctcagtcctaa	aaatttgttt	attcattttt	gtcattttat	420
tttcaactat	aatattttgt	atttggtgga	tattacactg	ccttatcatg	ataatcatcg	480
tgattttctaa	ctagatcatg	acgtctcaat	taaatgtttt	cttccaacta	aacacatccc	540
atattttatat	tattcgacat	tggttaattt	gattattttat	cccactttta	gcctatgcac	600
aggggctgtag	ctatgttaaa	gtcaggggtgt	taaattgaat	atccttcgtc	aaaaactaat	660
atcatatttta	tgtaaaatta	tatacgaagt	gattaaataa	catatttttg	acattcttaa	720
cagaacaagg	tgttgttgcc	caatcgtttc	attatttctg	tcacaattaa	caaatctacc	780
atgtgaaata	ggtgtacttc	accatggccc	ttgaatgtat	gacaagccgt	atattcgata	840
ggaaagagta	acgtttacgc	atccttaata	aaatgttaga	tgatgaatga	ggatctaata	900
agcatatgtg	caaagctcca	accaatcatg	attatctaata	aaagtgtgct	ttattcatta	960
ttctaaaatt	caacaattaa	taaaataatt	aggtcaaaag	cacatgggtg	agtggatgag	1020
tttgatcaac	ttgtaaatat	attattgcct	ttattcatct	ctagcttcat	tattattatt	1080
ttattaggtt	ctattttaatt	tctcgatatt	gatatttgca	ttaaaattca	attaattttg	1140
attcacatga	tataaaaccc	caatcacact	actcgaattt	aaaaccttta	attaagggga	1200
gtaacaattg	aataacaaaa	aaaaatctgt	tgggagtgcc	acccccgaat	agaccctgta	1260
gagcgcgatt	caaatttaata	cgaaactcta	atgtgggctc	cgagaaacaa	aaaaaaaaaa	1320
caattgaata	gcaaaggaaa	acagagtagt	gctgactgag	caagcaaaag	ccaattgaa	1380
atattagtag	taaatgacag	caatggccgt	tgcgtaggac	aagcacagca	gcagccccgt	1440
tttcgctttt	ccaagatct	ctctgcaaaa	tccttagcct	tctttactat	ataatagccc	1500
ctaaaacccc	attttttact	atacccatct	cttactcttg	ctctgtgata	atcctttctt	1560
ctaggagtag	ccatctccta	gaaccctttt	agtttctctt	tgtgtttttt	tgggtcaattt	1620
agtcatggga	ggaggagata	acggcggcaa	atcggatata	tcattcgccg	gaatatccgc	1680
aagtagtgcc	tttgctgctt	gtttcgctga	ggtaattctt	ccatcaatct	aatccctttt	1740
ttgcaatcct	gtcttgaaac	ttgctttgtt	gattcagctt	tacatctgtt	gctaagattt	1800
ttgatgattc	gaataggata	aatgggggtg	tttccttttc	cttttttttt	ttgtttctgg	1860

attgtcagga attgttgatc cccattgagc tgttaagtgt ttatgagctt ataatccttt 1920
 actggattgc tttgctgggc aatttaagtt ttgtttaatc tcctaagtct gtatgtttgt 1980
 attaaggtgc aatctgtttt ggcagataaa tgagtctctt ggttgagtgt ttgagtcatg 2040
 cgagagggta agtaagaata ctattgatcc tccttttggg gggcgggggg atctgtttcg 2100
 gcagataagt gaggccttggg tggagggttg agtcacactg gagggtaagt aggaacacta 2160
 ttgatcctcc ttttaggggg tggggaatct gtttcagcaa ataagtgagg cttgggttga 2220
 ggtgtgactc acactggagg gtatgtagga acagtattga tcctcctttt agggagggtg 2280
 ggaatctgtt tcggcagata attgaggctt ggttgagggt tcgagtcaca ctggagggta 2340
 agtaggaaca ttattgatcc tcctagaaga aagtgagggt tgatttgttc tgtatttagt 2400
 ttaagagatt aatcacctta ctacagcacc tgtaggaag ggaaaagagg atatcggatg 2460
 acctttaaac aaggtgatga tggtaaaaa taaatttgta ctcatgtttc cttaaaaata 2520
 attacttgta gaaatttggt ggacttgatt gtgtgaatac ttttatgaaa aaccatgact 2580
 tgcttaattt tggaggaatc agttttctat cttttgcttt ttatgaagct aggccttgat 2640
 gatgtatgta gttttcaaag aacagtgtat tgcgtatggg tgtatgaaat gaggtttggt 2700
 aagttttgat tgcgtctttt gggtcacccg acatgtatgg tgtctacatg tagtagatcg 2760
 ttttgaagtg tgcacccgt gctattatc gtgttattga ttccctcgtc gcctgttaat 2820
 cttgtttgct gcatacaaaa ttctgttctc caggcgtgta ctttaccatt ggatactgct 2880
 aaagttagac ttcagcttca aaagaaggca gttgaagggg atgggctagc tttacctaaa 2940
 tataggggat tattaggtac tgttggcacc attgcaaagg aagaaggaat agcttcacta 3000
 tggaagggta tcgtacctgg gttacatcgt caatgtatat atggagggtc tcggattggg 3060
 atgtatgaac ctgtaagtta acatttctag cttaaacagc tacaagttta ttttggcctt 3120
 ttacggactg tttgctgggt gaccagggtta aaaacttata tgttggcaaa gatcatgttg 3180
 gggatgtgcc attgtcaaag aaaatacttg ctgcacttac aactggtgag tgccttttag 3240
 atgttttgcg tttattgtca ctttgctcga gagtaaatgg acagcgaagc ttttatatcc 3300
 atttagaaaa catctggaca taggctatag aagttcagtg ttaagattat caataacata 3360
 cttctgtttt tccttgatc attcctttat actgtctggg ctttcaatat attttaaagt 3420
 aatttggtga ttctttatca aataggtgcg ttgggcatta caattgcaaa tcctacagat 3480
 ctagttaaag tacgtcttca agctgaagga aaattgccag cagggtgtgcc gaggcgttat 3540

tctggagctc	taaatgccta	ctcaacaata	gtgaaacagg	ttatatgtct	tgtctagctc	3600
agttgtttac	taaatcatga	taactaacga	cacgcggggc	tgtgaaattg	tgtacaccta	3660
ctttgaatca	tgacttggaa	attagttacc	ccttgaattg	aaattcaata	ttacctaaac	3720
aattatatat	gtgttgctat	tcaaactccc	acaatgtcta	cctatcaagc	ggacatacaa	3780
cctgcaaaaa	tatgtgcctt	tagtatgtaa	catttaacaa	ctattatgtc	cctagaattg	3840
gatacatgac	atttcttaaa	gattctttcg	ttgaactatt	ctttgataac	tgattctttg	3900
ttcgactttc	tcattctcca	tctaacttag	tgtattcgtt	tatcattctc	agagaaaaag	3960
ggtagtactt	ttcttctctg	tgtggtttcc	attctcctgg	aatgtttagg	aaattatgaa	4020
aagttctatt	tcattttaa	taatcaaata	cccaggtctg	tcagcttact	ggagcatttg	4080
caatataatg	taaatagaac	aggtttcaca	tgtgaaaatt	tgaggaaaact	cattggtgag	4140
tcatagtttt	cccaacaaaa	taagactcct	atttgaactt	gcatgttaac	ctctttgcat	4200
tttgttttcta	ccatatcttg	attttaggaa	ggagtctgag	ctctgtggac	tggtcttgga	4260
cccaatattg	ggcggaatgc	catcatcaat	gcagctgaat	tagcaagtta	tgatcaagtg	4320
aaggaggtag	agaaaccata	aatttcttat	tcccacctca	ttttccggac	catctaattg	4380
ggtgttttct	tgaatttgga	tgtttacatt	gtcattcttt	tcactgtttg	ttctttaaaa	4440
atttctgtgc	aggctgttct	taggattcct	gggttcacag	acaatgttgt	tactcatttg	4500
attgcggggc	ttggagctgg	tttttttgca	gtttgcatag	ggtctcctgt	tgatgtggta	4560
tcttctatgt	ttcttattat	ttgaaattgc	tttcctttta	gtcctttctg	acggcagccc	4620
atgattcagt	aatatttggt	agtatttttag	atcttcttgc	ccaaatagag	gatcttcttg	4680
gctatatagg	gggaaaagtt	atgcatagtc	ttacttttca	tgaaaaagat	tatcaaagtc	4740
aatatctagc	ctgttaaaca	cacgccttca	tcttgtgaat	ttgaagtcc	ctgctcatga	4800
attttcttta	ttattgtgca	gtgcgtgcct	aataataaaa	ctctagtttg	gctggggtaa	4860
atggaggagg	gattaaagga	ttaaaagtaa	cattgggagt	gtaaggggat	gtcttgtaat	4920
taaaaaagga	tcaataaaaa	ataaaataaa	gagagataat	ctgtcctaaa	ttgggcggaa	4980
gcatgtctat	tttacaata	ttaaaaccat	acaaagaata	ataaacaata	atagataatt	5040
cacttaacaa	gttacttttt	cttttctcaa	ccgcttcctt	ccccttcctg	gaatcaaaca	5100
tagtagagct	gggatcaaca	gtactgatat	cttgttactt	ggttggtgat	gatggcaata	5160
ccgatttttt	tcaaatttgc	gtacttaaga	agttcaccaa	acaccaaata	gcttcttata	5220

<210> 8

<211> 1225

<212> DNA

<213> Arabidopsis thaliana

<400> 8

gacgatcttt tctataactg aaacactact cgaggccaag ttgcttttagc cgtaatcgtc 60

gtcgtccctc ttcccgaaat tatctcttct ctgttcttcg atttcgaaac cctaacctcc 120
 tctctttaat tcgcgttttc tggatcgaag atggtggcgg ctggtaaatc cgacctttcc 180
 ttgcccaaaa ctttcgcctg cagtgccttc gctgcttgcg tcggcgaggt atgcacaatt 240
 ccattggaca ctgctaaagt taggcttcag ctccaaaagt ctgctcttgc tggatgatgt 300
 actctgccta aatatcgagg attggtggga actggttgga ccatagcaag ggaagaaggg 360
 ttacgttcac tatggaaagg tgttgtagct ggattgcac gtcaatgcct atttggaggt 420
 cttaggattg gaatgtatga gccggtgaaa aacttgtagt ttggaaaaga cttttagagt 480
 gatgttccat tgagcaagaa aattcttgct ggtttgacaa cagggtgcact gggtatcatg 540
 gtagcaaatc cactgatct tgtgaaagtt aggttcagg cggaaggaaa attagctgca 600
 ggtgcgccaa gacggtactc tggagcgctg aatgcgtatt caacaattgt gagacaggaa 660
 ggagtccgag ctctttggac tgttcttggc cctaacgtag caagaaacgc tattatcaat 720
 gctgctgaat tagcgagtta cgatcaagtg aaagagacta tcttgaagat tccagggttc 780
 actgacaacg ttgtcacaca tattctatct ggactggggg caggattctt tgcgttttgc 840
 atcggttctc ctgttgacgt ggtaagtca agaattgatg gagattctgg tgcttacaag 900
 ggcaccattg attgcttcgt caaaactctg aagagcgacg gtcctatggc attttacaag 960
 ggtttcatcc ccaactttgg acgccttggc tcatggaacg taatcatggt tttgacctc 1020
 gaacaggcaa agaagtatgt ccgggaactc gatgcgtcca aaagaaactg agacacaaag 1080
 ttttaagcag agggaatgag agcaacattg ttttcttctt cattttcggt gattgagaga 1140
 ggccagaact tggtcgaata ttgttttcgg aatagagatt cagttttcga gtaaaactgt 1200
 gaaataaaat ttctgtggat tgctc 1225

<210> 9

<211> 1088

<212> DNA

<213> Arabidopsis thaliana

<400> 9

tcctatagca taacaatggc ggatttcaaa ccaaggatcg agatttcggt ccttgaaacc 60
 ttcatttgca gcgctttcgc tgcttgtttt gctgagttat gtactatacc gttggacaca 120
 gccaaagtta gacttcagct tcaaagaaag attcccactg gagatgggtga gaatttgccc 180

aagtatagag gatcaattgg tactctagct accatagcta gagaagaagg tatttcaggt 240
 ctttggaag gtgttattgc aggacttcat cgccaatgta tctatggtgg ctttaaggatt 300
 gggttatatg agcctgtgaa gacacttttg gttggaagtg actttattgg cgatattcct 360
 ttatatcaaa agattcttgc agctttgtta actggagcta tagctattat tgtagctaat 420
 ccaactgata ttgttaaagt tcggcttcaa tcagaaggaa agttaccggc tggggttcct 480
 aggcgttatg caggagctgt agacgcttat ttcaccattg tgaagctgga aggagttagt 540
 gcgctatgga ctggacttgg tcccaatatt gcccggaatg ctattgtaaa tgctgcagag 600
 ttagctagtt atgatcaaat aaaggagaca attatgaaaa ttccgttctt cagagacagt 660
 gttttaactc atctactagc tggtttagct gcaggcttct tcgctgtctg catcggttct 720
 ccaattgatg tggtgaaatc tagaatgatg ggagactcta cttaccgaaa cacagtcgat 780
 tgcttcatca aaacgatgaa gaccgagggg attatggcat tctacaaagg atttctcccg 840
 aattttacac ggctaggaac ctggaatgcc attatgttcc tcacattaga acaagtgaaa 900
 aaagtgttcc taagagaagt cttgtacgat tgattctcag atccctagtc gaaaaccata 960
 ctttattaca taatcccttc tataaaactt tgaattgtta gaattaaaac atatatactt 1020
 tctatgttat gtgagctttg ttatttagat tagtatagaa acattttatc caaaaaaaaa 1080
 ttctttgc 1088

<210> 10

<211> 972

<212> DNA

<213> Homo sapiens

<400> 10

atgtccgtcc cggaggagga ggagaggctt ttgccgctga cccagagatg gccccgagcg 60
 agcaaattcc tactgtccgg ctgcgcggct accgtggcgg agctagcaac ctttccctg 120
 gatctcacia aaactcgact ccaaagcaa ggagaagcag ctcttgctcg gttgggagac 180
 ggtgcaagag aatctgcccc ctatagggga atggtgcgca cagccctagg gatcattgaa 240
 gaggaaggct ttctaaagct ttggcaagga gtgacaccgg ccatttacag acacgtagtg 300
 tattctggag gtcgaatggt cacatatgaa catctccgag aggttggtgt tggcaaaagt 360

gaagatgagc attatcccct ttggaaatca gtcattggag ggatgatggc tgggtgttatt 420
 ggccagtttt tagccaatcc aactgaccta gtgaagggtc agatgcaaata ggaaggaaaa 480
 aggaaactgg aaggaaaacc attgcatgtt cgtgggtgtac atcatgcatt tgcaaaaatc 540
 ttagctgaag gaggaatacg agggctttgg gcaggctggg taccataat acaaagagca 600
 gcaactggga atatgggaga tttaaccact tatgatacag tgaaacacta cttgggtattg 660
 aatacaccac ttgaggacaa tatcatgact cacggtttat caagtttatg ttctggactg 720
 gtagcttcta ttctgggaac accagccgat gtcataaaaa gcagaataat gaatcaacca 780
 cgagataaac aagggaagggg acttttgtat aaatcatcga ctgactgctt gattcagget 840
 gttcaagggtg aaggattcat gagtctatat aaaggctttt taccatcttg gctgagaatg 900
 accccttggt caatggtggt ctggcttact tatgaaaaaa tcagagagat gagtggagtc 960
 agtccatttt aa 972

<210> 11

<211> 974

<212> DNA

<213> Triticum aestivum

<400> 11

cttctaccct tctttccctc tgctcgccat cgaccgaacc acagccgccc ccgcttcccc 60
 ggggataaaa tggcgacggc ctcttccttc gccgcccgtc tcatcagcag cgccatcgcc 120
 tcctgcttcg ctgagggtgtg caccattcct ctggacacag ccaagggtgcg tcttcagctg 180
 caaaagaaaa cagctgctgg gcctgcaggt acagtaggaa tgctgggcac aatgatgtcg 240
 attgcaaggg aggaaggcgt caccgcactt tggaagggca tcatccctgg ctttcatcgc 300
 cagtgcctct atggcggcct ccgtgtcggc ttgtatgagc ctgtcaaagc cttatttgtg 360
 tttgtaggtg atgccacttt aatgaacaag attcttgccg ctcttacaac tgggtgtcata 420
 gcgattgctg tcgcaaatac aactgatctt gtcaaagtga gattgcaagc agatggaaaa 480
 tctactgccg tcaagaggca ctattctgga gcccttaatg cgtatgccac catagtcaga 540
 caggaaggta tcggagcttt gtggactggc cttggctcta atatggcacg aaatgctttg 600
 attaatgccg ccgagttggc cagctacgac caatttaaac agatgtttct aggtcttccct 660
 gggtttacag ataatgttta tactcatctt ttagctggac tcgggtgccg tatttttgct 720

gtttgcattg gatctccagt ggatgtggtg aaatcaagaa tgatgggcga ttcaacatac	780
agaagtacat ttgattgttt cgccaagaca ttaaaaaatg atggacttgc tgctttctac	840
aaggggttta ttgcaaactt ttgtcgagtt gggtcattga atgtgataat gttcttaact	900
ttggaacagg ttagaagctt ctttcagtaa ggattatata tgaaatctgc gctgcaaggt	960
ttcatggaac aagc	974

<210> 12

<211> 1592

<212> DNA

<213> Homo sapiens

<400> 12

gcttaacggt cctctggtct ctctctcccc tcagctgagt cccttccttg tctttcactc	60
ttctggcatc ggtggtttta cttcttcgat tgaaccctgc ttctctgacc cccctgggag	120
gccgccttct tcaggcgctt cccttctctc cacgagctcg ctctgacagc tgaggaactg	180
gcaagatcct gctaccaga gggatgaatgg gtatctttcc cggaataatc ctaatttttc	240
taagggtgaa gtttgcaacg gcggccgtga ttcaccagaa aagtaccact gtaagtcatg	300
agatgtctgg tctgaattgg aaaccctttg tatatggcgg ccttgccctc atcgtggctg	360
agtttgggac tttccctgtg gaccttacca aaacacgact tcaggttcaa ggccaaagca	420
ttgatgcccg tttcaaagag ataaaatata gagggatggt ccatgcgctg tttcgcactc	480
gtaaagagga aggtgtattg gctctctatt caggaattgc tcttgcgttg ctaagacaag	540
catcatatgg caccattaaa attgggattt accaaagctt gaagcgccta ttcgtagaac	600
gtttagaaga tgaaactctt ttaattaata tgatctgtgg ggtagtgtca ggagtgatat	660
cttccactat agccaatccc accgatgttc taaagattcg aatgcaggct caaggaagct	720
tgttccaagg gagcatgatt ggaagcttta tcgatatata ccaacaagaa ggcaccaggg	780
gtctgtggag ggggtgtggtt ccaactgctc agcgtgctgc catcgttgta ggagtagagc	840
taccagtcta tgatattact aagaagcatt taatattgtc aggaatgatg ggcgatacaa	900
ttttaactca cttcgttttc agctttacat gtggtttggc tggggctctg gcctccaacc	960
cggttgatgt ggttcgaact cgcgatgatga accagagggc aatcgtggga catgtggatc	1020

tctataaggg cactgttgat ggtattttaa agatgtggaa acatgagggc ttttttgcac 1080
 tctataaagg attttggcca aactggcttc ggcttggacc ctggaacatc atttttttta 1140
 ttacatacga gcagctaaag aggcttcaaa tctaagaact gaattatatg tgagcccagc 1200
 cctgccagcc tttctactcc tttgcccttt tcccgtgttc taatgtatct tgacaatggt 1260
 gtaagtgttt accaagccgt tggctctcta agggcctcct gatggaagaa cagtgggggtg 1320
 gttcaaagtt atttctatgt ttgtgttacc atgttaactt tcccccgaga gaaagtgtta 1380
 acattgagac tctggcccca gattgggtatc ttctatgaag atggatactg atgggtgaca 1440
 ttgaaaacgg cctgctttcc aaatgtgggt aaatgtaatt ggtagcccc agacttgggc 1500
 tagagcagaa ggcataggcc aggggtggta ttgctatatg tgttacagac ctcggttctc 1560
 attaaagtat ttattggcag aatcacaaaa aa 1592

<210> 13

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<221> Artificial Sequence

<222> (1)..(27)

<223> Synthetic oligonucleotide

<400> 13

gtaccgggcc ccatgggttg tttcaag

27

<210> 14

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<221> Artificial Sequence

27

30

27